

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Certification and Petition for Declaratory)	IB Docket No. 04-439
Ruling of Inmarsat Group Holdings)	
Limited Pursuant to Section 621(5)(F) of)	
The ORBIT Act)	

REPLY COMMENTS OF IRIDIUM SATELLITE LLC

Iridium Satellite, LLC (“Iridium”) respectfully submits these reply comments in response to the comments filed on Inmarsat Group Holdings Limited’s (“Inmarsat”) Certification and Request For Declaratory Ruling that was submitted to the Commission on November 15, 2004.¹ This request was intended to demonstrate that Inmarsat has met the requirement in the ORBIT Act that “no intergovernmental organization has...more than a minimal ownership interest in a successor entity of Inmarsat.”² If the Commission determines that Inmarsat has complied with this requirement, as Lockheed Martin requests, Inmarsat may be found to no longer be an intergovernmental organization and thus may qualify for authorization by the Commission to

¹ See Public Notice, Inmarsat Group Holdings Limited Files Certification and Petition for Declaratory Ruling Pursuant to Section 621(5)(F) of the Open-Market Reorganization for the Betterment of International Telecommunications Act, as amended (the “ORBIT Act”), DA 04-4011 (released Dec. 21, 2004).

² Open-Market Reorganization for the Betterment of International Telecommunications Act, Pub. L. No. 106-180, 114 Stat. 48 (2000), *as amended*, Pub. L. No. 107-233 (2002), *as amended*, Pub. L. No. 108-228 (2004), *as amended*, Pub. L. No. 108-371 (2004) ("ORBIT Act") at § 621(5)(F).

provide mobile satellite service (“MSS”) to the United States.³ Accordingly, when this determination is made, the Commission should also ensure that incumbent U.S. licensees are protected from harmful interference from Inmarsat’s new service.

Section 25.136 of the Commission’s rules concern “Licensing Provisions for the L-band mobile satellite service,” and include the associated technical conditions that must be met to provide such service. They state, in part, that “[i]n addition to the technical requirements specified in Section 25.213, earth stations operating in the 1.6/2.4 GHz and 1.5/1.6 GHz mobile satellite service are subject to [a variety of] operating conditions.”⁴ Similarly, Section 25.213 of the Commission’s rules concerns Interservice Coordination requirements for the 1.6/2.4 GHz mobile satellite services. Neither of these sections, however, requires that MSS operators in these bands be protected from the out-of-band emissions (“OOBE”) of MSS operators in the adjacent 1.6 GHz band, 1626.5-1660.5 MHz (“1.6 GHz band”).

The purpose of the ORBIT Act, *inter alia*, is to “to promote a fully competitive global market for satellite communication services for the benefit of consumers and providers of satellite services and equipment.”⁵ Therefore, the Commission’s authorization of any mobile satellite system to serve the US market should be based on technical operation criteria that promote true competition by providing protection to all US licensed mobile satellite systems in equal measure. Accordingly, the level of unwanted OOBE radiated outside the 1.6 GHz band from new applicants should be strictly limited in accordance with recognized international

³ See generally Comments of Lockheed Martin Corporation, IB Docket No. 04-439 (filed Jan. 21, 2005).

⁴ 47 C.F.R. § 25.136.

⁵ ORBIT Act at § 2.

standards.⁶ The adoption of these safeguards will ensure the protection of already authorized US MSS systems, such as Iridium.

In wishing to obtain access to the US market, Inmarsat seeks to use the MSS 1.6 GHz band, which is currently allocated for earth-to-space MSS communications. Iridium's systems operate in the immediate adjacent lower band. For the 1.6 GHz band, ITU-R Recommendation M.1480⁷ specifies limits that should be met by earth stations transmitting to geostationary mobile satellite space stations. To no avail, Inmarsat has been attempting to weaken this OOB recommendation for over three years in ITU-R Working Party-8D, which has responsibility for it. Thus, the international community has found that these OOB limitations are necessary to ensure the protection of licensees operating in bands adjacent to the 1.6 GHz band, including Iridium. Accordingly, the Commission should similarly apply the OOB limits in this or an equivalent standard to Inmarsat's provision of service in the United States in the 1.6 GHz band. To do otherwise would deprive the already licensed Iridium system of protection afforded by the reference recommendation, thereby providing Inmarsat with a competitive advantage.

While the focus of the ORBIT Act may be the ownership structure of satellite operators that continue to enjoy the residual advantages of their former status as intergovernmental organizations, the Commission should not lose sight of other threshold requirements that should be met by all networks – and to apply them equally. Accordingly, Iridium urges the Commission to mandate that Inmarsat meet the OOB limits specified in Recommendation M.1480, which is

⁶ See Exhibit A for these standards.

⁷ Essential Technical Requirements of Mobile Earth Stations of Geostationary Mobile-Satellite Systems that are Implementing the Global Mobile Personal Communications by Satellite (GMPCS) – Memorandum of Understanding Arrangements in Parts of the Frequency Band 1-3 GHz, ITU-Recommendation M.1480.

attached to these comments as Exhibit A, as a condition to the granting of Inmarsat's request for a Declaratory Ruling.

Respectfully submitted,

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ATTACHMENT 1

Extract of ITU-R Recommendation M.1480, Essential Technical Requirements of Mobile Earth Stations

Unwanted emissions from MESs outside the band 1626.5 - 1660.5 MHz shall be below the following limits:

- a) The unwanted emissions over the frequency range 30 - 1000 MHz shall not exceed the limits in Table 1.

Table 1
*Limits of unwanted emissions up to 1000 MHz
in a 120 kHz measurement bandwidth at
a measuring distance of 10 m*

Frequency (MHz)	Quasi-peak limits (dB(μV/m))
30 - 230	30
230 - 1000	37

The lower limit shall apply at the transition frequency.

- b) The unwanted emissions e.i.r.p. above 1 000 MHz in the measurement bandwidth and in all directions shall not, according to the MES type, exceed the limits of Tables 2a or 2b, as appropriate:

Table 2a
*Limits of unwanted emissions above 1000 MHz and outside the band
1626.5-1660.5 MHz for MESs with e.i.r.p. less than or equal to 15 dBW*

Frequency range (MHz)	Carrier-on		Carrier-off	
	e.i.r.p. limit (dBW)	Measurement bandwidth (kHz)	e.i.r.p. limit (dBW) ⁽¹⁾	Measurement bandwidth (kHz)
1000.0 - 1525.0	-61	1000	-77	100
1525.0 - 1559.0	-61	1000	-97	100
1559.0 - 1600.0	-70	1000 ⁽²⁾	-77	100
1600.0 - 1605.0	-70	1000	-77	100
1605.0 - 1612.5	-70 to -58.5 ⁽³⁾	1000	-77	100
1612.5 - 1616.5	-55 to -50 ⁽³⁾	1000	-77	100
1616.5 - 1621.5	-50 to -46 ⁽³⁾	1000	-77	100
1621.5 - 1624.5	-60	30	-77	100
1624.5 - 1625.0	-60 to -57.5 ^{(3), (4)}	30	-77	100
1625.0 - 1625.125	-57.5 to -57.2 ^{(3), (4)}	30	-77	100
1625.125 - 1625.8	-57.2 to -50 ^{(3), (4)}	30	-77	100
1625.8 - 1626	-50 to -47 ^{(3), (4)}	30	-77	100
1626 - 1626.2	-47 to -40 ^{(3), (4)}	30	-77	100
1626.2 - 1626.5	-40 ⁽⁴⁾	30	-77	100
1626.5 - 1660.5	⁽⁵⁾	⁽⁵⁾	⁽⁵⁾	⁽⁵⁾

1660.5 - 1662.5	(5)	(5)	(5)	(5)
1662.5 - 1665.5	-60	30	-77	100
1665.5 - 1670.5	-60	100	-77	100
1670.5 - 1680.5	-60	300	-77	100
1680.5 - 1690.5	-60	1000	-77	100
1690.5 - 2250	-60	3000	-77	100
2250 - 12750	-60 ^{(6), (7), (8)}	3000	-77	100

Footnotes to Table 2a:

(1) Peak-hold measurement techniques should be used in the bands 1 000-1 525 MHz and 1 559-1 626.5 MHz and from 1 662.5-12 750 MHz. These values should be at or below the values for the carrier-on state.

(2) In the sub-band 1 573.42-1 580.42 MHz, the average measurement time is 20 ms.

(3) Linearly interpolated (dBW) versus frequency.

(4) The power limits specified in Table 2a in the 1 624.5-1 626.5 MHz band require further study. This study is important to determine whether less stringent limits may enhance spectrum efficiency and utilization immediately above 1 626.5 MHz.

(5) The unwanted emissions in that frequency range are limited by § 3.2.

(6) In the band 3 263.0-3 321.0 MHz the maximum e.i.r.p. in one, and only one, 300 kHz measurement bandwidth shall not exceed -38 dBW. Elsewhere in this band the power limit in Table 2a shall be applied.

(7) In each of the bands 4 894.5-4 981.5 MHz, 6 526.0-6 642.0 MHz and 8 175.5-8 302.5 MHz the maximum e.i.r.p. in one, and only one, 300 kHz measurement bandwidth shall not exceed -48 dBW. Elsewhere in this band the power limit in Table 2a shall be applied.

(8) In the band 9 789.0-9 963.0 MHz the maximum e.i.r.p. in one, and only one, 300 kHz measurement bandwidth shall not exceed -59 dBW. Elsewhere in this band the power limit in Table 2a shall be applied.

Table 2b
Limits of unwanted emissions above 1000 MHz and outside the band
1626.5-1660.5 MHz for MESs with e.i.r.p. greater than 15 dBW

Frequency range (MHz)	Carrier-on		Carrier-off	
	e.i.r.p. limit (dBW)	Measurement bandwidth (kHz)	e.i.r.p. limit (dBW) ⁽¹⁾	Measurement bandwidth (kHz)
1000.0 - 1525.0	-61	1000	-77	100
1525.0 - 1559.0	-61	1000	-97	100
1559.0 - 1600.0	-70	1000 ⁽²⁾	-77	100
1600.0 - 1605.0	-70	1000	-77	100
1605.0 - 1610.0	(2)	1000	(3)	1000
1610.0 - 1621.5	-46 ⁽²⁾	1000	-72	100
1621.5 - 1624.5	-46 to -40 ⁽⁴⁾	1000	-72	100
1624.5 - 1625.0	-60 to -57.5 ^{(4), (5), (6)}	30	-72	100
1625.0 - 1625.125	-57.5 to -57.2 ^{(4), (5), (6)}	30	-72	100
1625.125 - 1625.8	-57.2 to -50 ^{(4), (5), (6)}	30	-72	100
1625.8 - 1626	-50 to -47 ^{(4), (5), (6)}	30	-72	100
1626 - 1626.2	-47 to -40 ^{(4), (5), (6)}	30	-72	100
1626.2 - 1626.5	-40 ^{(5), (6)}	30	-72	100
1626.5 - 1660.5	(7)	(7)	(7)	(7)
1660.5 - 1662.5	(7)	(7)	(7)	(7)
1662.5 - 1690.0	-36	1000	-72	100
1690.0 - 3400.0	-61 ⁽⁸⁾	1000	-72	100
3400 - 10700	-55 ^{(9), (10)}	1000	-72	100

10700 - 12750	-49	1000	-76	100
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Footnotes to Table 2b:

- (1) Peak-hold measurement techniques should be used in the bands 1 000-1 525 MHz and 1 559-1 624.5 MHz and from 1 662.5-12 750 MHz. These values should be at or below the values for the carrier-on state.
- (2) Linearly interpolated from - 70 dB(W/MHz) at 1 605.0 MHz to - 46 dB(W/MHz) at 1 610.0 MHz. The Russian Federation states that a level of - 70 dB(W/MHz) in the band 1 605-1 610 MHz and a linear interpolation between - 70 dB(W/MHz) at 1 610 MHz and - 36 dB(W/MHz) at 1 615 MHz shall be used to provide protection of GLONASS receiver operations.
- (3) Linearly interpolated from - 70 dB(W/MHz) at 1 605.0 MHz to - 62 dB(W/MHz) at 1 610.0 MHz.
- (4) Linearly interpolated (dBW) versus frequency.
- (5) The maximum e.i.r.p as specified in Table 2b may be exceeded in the 1 624.5-1 626.5 MHz band in a maximum of four separated 30 kHz measurement bandwidths. The upper limit for this excess power for any of these 30 kHz measurement bandwidths shall be 5 dB above the power limits defined in Table 2b. The total excess power from these four measurements should not exceed by 8 dB. Any two of the 30 kHz measurements bandwidths that exceed the power limits defined in Table 2b shall be separated by at least one 30 kHz measurement bandwidth compliant with the power limits defined in Table 2b.
- (6) The power limits specified in Table 2b in the 1 624.5-1 626.5 MHz band are set at the minimum level based on Table 2a. These limits require further study. This study is important to determine whether less stringent limits may enhance spectrum efficiency and utilization immediately above 1 626.5 MHz. This study should include the limits in Note (5).
- (7) The unwanted emissions in that frequency range are limited by § 3.2.
- (8) In the band 3263.0 - 3321.0 MHz the maximum e.i.r.p. in one, and only one, 300 kHz measurement bandwidth shall not exceed -38 dBW. Elsewhere in this band the power limit in Table 2b shall be applied.
- (9) In each of the bands 4894.5 - 4981.5 MHz, 6526.0 - 6642.0 MHz and 8175.5 - 8302.5 MHz the maximum e.i.r.p. in one, and only one, 300 kHz measurement bandwidth shall not exceed -48 dBW. Elsewhere in this band the power limit in Table 2b shall be applied.
- (10) In the band 9789.0 - 9963.0 MHz the maximum e.i.r.p. in one, and only one, 300 kHz measurement bandwidth shall not exceed -59 dBW. Elsewhere in this band the power limit in Table 2b shall be applied.